

REMARKS

I. Status of the Application

Claims 1-20 are pending in this application. In the November 30, 2004 office action, the Examiner:

A. Rejected claim 1-17 under 35 U.S.C. § 102(b), as allegedly being anticipated by U.S. Patent No. 5,094,956 to Ozaki et al. (hereinafter “Ozaki”); and

B. Rejected claim 18-20 under 35 U.S.C. § 103(a), as allegedly being unpatentable over Ozaki.

In this response, Applicants have amended claims 14 and 18 to further clarify the inventive subject matter. Applicants have canceled claims 1-13, without prejudice, and have added new claim 21. Applicants respectfully traverse the rejections of claims 14-20 and request reconsideration of the application in view of the foregoing amendments and the following remarks.

II. The Anticipation Rejection of Claim 14

Claim 14 stands rejected as allegedly being anticipated by Ozaki. As will be discussed below in detail, Ozaki fails to teach or suggest each and every element of claim 14. As a consequence, it is respectfully submitted that the rejection of claim 14 over Ozaki should be withdrawn.

A. The Present Invention

Claim 14 is directed to a semiconductor device having a substrate, active areas, a gate, a first non-planar metallization level and a second planar metallization level. The active areas are formed within the substrate and include a source area and a drain area. (By way of example, see source 14 and drain 16 of Fig. 2 of the Application). The gate is disposed between the source area and the drain area and is insulated from the substrate by an oxide layer. (By way of example, see gate 20 and oxide layer 24 of Fig. 2). The first non-planar metallization level is formed on the substrate in contact with the active areas. This first non-planar metallization level includes a first portion connected to the source area, a second portion connected to the drain area and a third portion at least partially covering the gate. As shown in Fig. 2, the non-planar metallization level is labeled as structure 42.

As amended, the third portion of the metallization level includes 1) a portion that covers a side face of the gate facing the source area, 2) a portion covering a surface of the gate facing away from the substrate, and 3) a portion covering a part of a side face of the gate facing the drain area. The portion that covers the side face of the gate facing the drain area terminates at an end displaced from the substrate by a predetermined displacement. An example of this third portion is labeled as 42C, which covers the side of the gate 20 facing the source 14, the surface of the gate 20 facing away from the substrate 10, and a part of the side of the gate 20 facing the drain 16. The end of the third portion by the drain 16 terminates above the substrate 10. (See application at Fig. 2).

The planar metallization level is spaced apart from the first metallization level above the substrate and is connected to the second portion of the first metallization level via a

through connection.

B. Osaki Does Not Teach or Suggest the Third
Portion of the Non-Planar Metallization Level as Claimed

Osaki does not teach or suggest a third portion of a metallization level as claimed in claim 14. In particular, Osaki appears to have various metallization portions 19b, 19c and even 20a and 20b. However, none of those metallization portions of Osaki satisfy the limitations of claim 14, as amended.

As correctly identified by the Examiner, Osaki teaches a gate 4, a drain and a source (6a, 6b, 8a, 8b). As clearly shown in Fig. 2L of Osaki, none of the metallization levels cover the side of the gate 4 facing the source region, the side of the gate facing away from the substrate 1, *and* part of the side of the gate 4 facing the drain.

Accordingly, Osaki fails to teach each and every element of claim 14 as amended. Moreover, nothing in Osaki suggests alteration of the metal layer 19 in any way that could result in the claimed invention. For at least this reason, it is respectfully that the anticipation rejection of claim 14 should be withdrawn.

III. Claims 15-17

Claims 15-17 also stand rejected as allegedly being anticipated by Osaki. Claims 15-17 all depend from and incorporate all of the limitations of claim 14. As a consequence, for at least the same reasons as those set forth above in connection with claim 14, it is respectfully submitted that the anticipation and/or obviousness rejections of claims 15-17 should be withdrawn.

IV. Claims 18-20

Claims 18-20 stand rejected as allegedly being obvious over Osaki. Claims 18-20 all depend from and incorporate all of the limitations of claim 14. As discussed above, claim 14 is patentable over Osaki. Moreover, even if Osaki were modified as proposed by the Examiner in the rejection of claims 18-20, Osaki would still be deficient with respect to claim 14 as amended. As a consequence, for at least the same reasons as those set forth above in connection with claim 14, it is respectfully submitted that the obviousness rejections of claims 18-20 should be withdrawn.

In addition, claim 18 has been amended to specifically claim that the displacement of the edge of the metallization level from the substrate is between 250 nm and 500 nm. Pages 10 and 11 of the Specification discuss how the feedback capacitance of the device may be reduced if the edge is displaced at various distances between 250 nm and 500 nm. Osaki does not relate any distance between the metallization level portion and the substrate with a reduction of feedback capacitance. Accordingly, one of ordinary skill in the art would not be motivated to modify Osaki to adopt any displacement within the claimed range. As a consequence, for reasons independent of those set forth above in connection with claim 14, it is respectfully submitted that the rejection of claim 18 over Osaki should be withdrawn.

V. New Claim 21 is in a Condition for Allowance

Claim 21 depends from and incorporates all of the limitations of claim 14. As a consequence, for at least the same reasons as those set forth above in connection with claim

14, it is respectfully submitted that claim 21 is in a condition for allowance. In addition, claim 21 specifies that the displacement of the edge of the third portion of the metallization level over the drain should be less than the thickness of the gate. As taught in pages 10 and 11 of the present Application, such displacement limitations help reduce feedback capacitance. Osaki contains no teaching with regard to feedback capacitance reduction. Accordingly, one of ordinary skill in the art would not be motivated to modify Osaki to employ a displacement between the metallization level edge over the drain and the substrate that is within the claimed range.

Accordingly, for reasons independent of those set forth above in connection with claim 14, it is respectfully submitted that claim 21 is in a condition for allowance.

VI. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,



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